WHAT IS CLAIMED IS:

1. A system for determining an arterial blood constituent of a patient, comprising:

a processing device in communication with a detector to process a detector signal from said detector representing a noncardiac produced blood pulse for determination of said blood constituent.

2. The system of claim 1 wherein at least two points on said detector signal are used.

3. The system of claim 1 further comprising:

a sensor for attaching to said patient, including a radiation emitter and a radiation detector.

4. The system of claim 3 wherein said sensor comprises a sensor body containing said emitter and said detector configured to fit entirely on a nail of a patient

5. The system of claim 3 further comprising a stimulator configured to create an artificial pulse in said patient.

6. The system of claim 3 wherein said sensor is a reflectance sensor.

7. The system of claim 6 wherein said emitter and said detector are separated by less than 10 millimeters.

8. The system of claim 3 wherein said sensor includes a sensor body preformed to conform to the curvature of a nail.

9. The system of claim 3 wherein said detector detects reflectance signals from said sensor, and further

comprising at least one additional optical element mounted in said sensor body to facilitate transmittance signals.

10. The system of claim 9 wherein said additional optical element is an additional radiation detector.

11. The system of claim 9 wherein said additional optical element is an additional radiation emitter.

12. The system of claim 9 further comprising means for cross-reference calibration of said reflectance and transmittance signals during periods of minimal motion.

13. The system of claim 1 wherein said processing device further comprises:

a first processing unit configured to determine a physiological parameter from a cardiac derived plethysmogram from said detector; and

a second processing unit configured to determine said physiological parameter from a motion artifact waveform from said detector.

14. The system of claim 13 further comprising a control unit configured to utilize said first and second processing units responsive to a motion artifact content of said detector signals.

15. The system of claim 14 wherein said control unit is configured to switch between said first and second processing units.

16. The system of claim 14 wherein said control unit is configured to combine signals from said first and second processing units.

17. The system of claim 3 wherein said sensor is an oximeter sensor.

18. A reflectance optical sensor comprising:

a sensor body configured to attach to a patient's digit over a nail;

a radiation emitter mounted in said sensor body adjacent said nail; and

a radiation detector mounted in said sensor body spaced from said emitter and adjacent said nail.

19. The sensor of claim 18 further comprising an adhesive for attaching said sensor body to said nail, and wherein said sensor body is configured to fit entirely on said nail.

20. The sensor of claim 18 further comprising a portion of said sensor off said nail.

21. The sensor of claim 18 wherein said emitter comprises a fiber optic light guide.

22. The sensor of claim 18 wherein said detector comprises a fiber optic light guide.

23. The sensor of claim 18 wherein said sensor body is rigid and preformed to the curvature of a nail.

24. The sensor of claim 18 wherein said sensor body is deformable to adapt to the exact curvature of a nail.

25. The sensor of claim 18 wherein said emitter and said detector are recessed within said sensor body.

26. The sensor of claim 18 wherein said sensor body provides a numerical aperture of less than 0.9 for radiation emitted from said emitter and detected by said detector.

27. The sensor of claim 18 wherein said sensor body provides a numerical aperture of less than 0.5 for radiation emitted from said emitter and detected by said detector.

28. The sensor of claim 18 further comprising a cylindrical lens mounted adjacent said emitter.

29. The sensor of claim 18 wherein said sensor body is at least partially absorbing for at least one wavelength of said emitter for at least a portion of a region of said sensor body between said emitter and said detector.

30. The sensor of claim 18 further comprising:

a cable attached to said sensor providing a connection to said emitter and said detector; and

a strap configured to attach said cable to a digit adjacent said sensor for strain relief of said cable.

31. The sensor of claim 30 wherein said cable includes a fiber optic cable connected to at least one of said emitter and said detector.

32. The sensor of claim 30 wherein said cable includes a flexible circuit connected to at least one of said emitter and said detector.

33. The sensor of claim 18 wherein said detector is mounted within 10 millimeters of said emitter.

34. The sensor of claim 33 wherein said detector is mounted approximately 4 millimeters from said emitter.

35. The sensor of claim 18 wherein said emitter and detector are mounted more orthogonal than parallel to an axis of said digit.

36. The sensor of claim 18 wherein said emitter and detector are mounted more parallel than orthogonal to an axis of said digit.

37. The sensor of claim 18 wherein said emitter and detector are spaced and positioned so that both will not be over the lunula of a nail when attached.

38. The sensor of claim 18 wherein said sensor body includes a portion for contacting a portion of said digit off said nail.

39. The sensor of claim 18 wherein said sensor is a pulse oximeter sensor.

40. An optical sensor comprising:

a sensor configured to attach to a patient;

an emitter connected to said sensor;

a detector connected to said sensor and spaced from said emitter to detect reflectance signals; and

at least one optical element connected to said sensor to facilitate transmittance signals.

41. The sensor of claim 40 further comprising:

processing means for utilizing said transmittance signals to process signals produced predominantly by cardiac pulses, and utilizing said reflectance signals to process signals produced predominantly by non-cardiac blood pulses.

42. The sensor of claim 40 further comprising:

means for allowing the selective activation of said detector to use said reflectance signals in the presence of motion.

43. A photometric device for processing detector signals representative of a blood property of a patient from a sensor attached to said patient, said sensor including a

radiation emitter and a radiation detector, said monitor comprising:

a control unit configured to generate an activation signal to selectively activate said emitter; and

a processing unit configured to receive said detector signals and to process said detector signals utilizing at least two points on a detector signal waveform produced by motion of said patient for measurement of said blood property.

44. A photometric processing device for processing detector signals from a radiation detector in a patient sensor also having a radiation emitter, comprising:

a first processing unit configured to determine a blood parameter from a cardiac derived plethysmogram from said detector;

a second processing unit configured to determine said blood parameter from a motion artifact waveform from said detector; and

a control unit configured to utilize said first and second processing units responsive to a motion artifact content of said detector signals.

45. The photometric processing device of claim 44 further comprising a processor and a memory, wherein said first and second processing units and said control unit are first, second and third programs stored in said memory.

46. A photometric processing device for processing detector signals from a detector in a patient sensor having an emitter and a detector, comprising:

a stimulator configured to generate an artificial pulse in said patient, said artificial pulse being distinct from a cardiac derived arterial pulse; and

a processing unit configured to determine a physiological parameter of arterial blood from a signal from said detector representative of said artificial pulse.

47. The device of claim 46 wherein said physiological parameter is arterial oxygen saturation.

48. The device of claim 46 wherein said stimulator induces movement of an appendage of said patient.

49. The device of claim 46 wherein said stimulator comprises an inflatable bag and an attachment mechanism configured to attach said bag to one side of an appendage of said patient.

50. The device of claim 46 further comprising a bandpass filter coupled to receive a signal from said detector, said bandpass filter passing one of an amplitude, phase and frequency of said stimulator, wherein said distinction is one of an amplitude, phase and frequency.

51. The device of claim 50 wherein said frequency can be changed.

52. The device of claim 46 further comprising a frequency generator coupled to said stimulator.

53. The device of claim 52 wherein said frequency generator is configured to vary an output frequency.

54. A photometric processing device for processing detector signals from a detector in at least one patient sensor having an emitter and a detector, comprising:

a selector configured to select between a reflectance signal and a transmittance signal from said at least one sensor; and

a processing unit configured to determine a physiological parameter from a plethysmogram from said at least one sensor.

55. The device of claim 54 further comprising:

a first processing unit configured to determine a physiological parameter from a cardiac derived plethysmogram from said detector;

a second processing unit configured to determine said physiological parameter from a motion artifact waveform from said detector; and

a control unit configured to switch between said first and second processing units in accordance with a selection of said selector.

56. The device of claim 55 wherein said selector is responsive to a motion artifact content of a detector signal from said at least one sensor.

57. A method of measuring arterial oxygen saturation, comprising the steps of:

selecting a site on a patient wherein detected light signals from at least two wavelengths are sufficiently correlated in the presence of motion;

placing a pulse oximeter sensor on said site; and

measuring arterial oxygen saturation using said sensor.

58. The method of claim 57 wherein said light signals produce a closed Lissajous.

59. The method of claim 57 wherein said sufficiently correlated signals produce an arterial oxygen saturation that is accurate within 15 saturation points.

60. The method of claim 57 wherein said sufficiently correlated signals produce an arterial oxygen saturation that is accurate within 10 saturation points.

61. The method of claim 57 wherein said oxygen saturation is measured by analyzing at least two points on a waveform generated by motion of said patient.

62. A method for measuring a property of blood, comprising the steps of:

selecting a site on a patient wherein propagated light of at least two wavelengths will have sufficiently correlated waveforms in the presence of non-cardiac pulses;

placing a light emitter and light detector on said site; and

using signals derived from said light detector to measure said blood property.

63. The method of claim 62 wherein said signals include predominately motion-induced variations and said site is a nail on a digit.